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भारतीय मानक

## लैंडिंग वाल्व — विशिष्टि

(तीसरा पुनरीक्षण)

Indian Standard

LANDING VALVES — SPECIFICATION

(Third Revision)

UDC 621.646.2:614.843.3

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BUREAU OF INDIAN STANDARDS MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG NEW DELHI 110002 Fire Fighting Sectional Committee, CED 22

#### **FOREWORD**

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

The landing valves are sometimes also referred to as internal hydrants because these are usually fitted inside the buildings for wet hydrant system. These are primarily intended for being installed at the staircase landing at each floor level, from where fire-hose could be laid out by the fire brigade or trained men for fighting fire on the concerned floor. Because of this, the design of these valves has to be compact so as not to cause any obstruction to the passage where these may be installed.

Landing valves may be installed in different ways and altitudes and for yielding varying output of water, requiring different shape and sizes. Two types which are mostly used have been covered in this standard. The landing valves when used for sea water should not be made of aluminium alloy.

This standard was first published in 1969 and revised subsequently in 1977 and 1983. This revision has been prepared in order to update the provisions of the standard which has been done for incorporating the amendments and modified figures.

The composition of committee responsible for the preparation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2: 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

### Indian Standard

### LANDING VALVES — SPECIFICATION

### (Third Revision)

#### 1 SCOPE

This standard lays down the requirements regarding materials, shape, dimensions, and performance requirements of two types of landing valves.

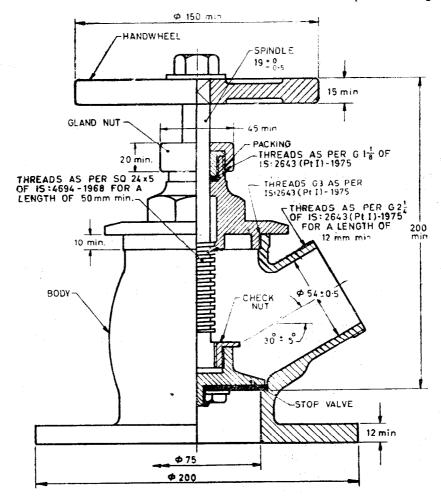
### 2 REFERENCES

The Indian Standards listed in Annex A are necessary adjuncts to this standard.

#### 3 GENERAL

The landing valves assembly shall consist of valve(s) (see Fig. 1 and 2), instantaneous female outlet(s) (see Fig. 3) and blank cap(s) (see Fig. 4).

NOTE — The instantaneous female outlets may also be manufactured as a part of landing valves.

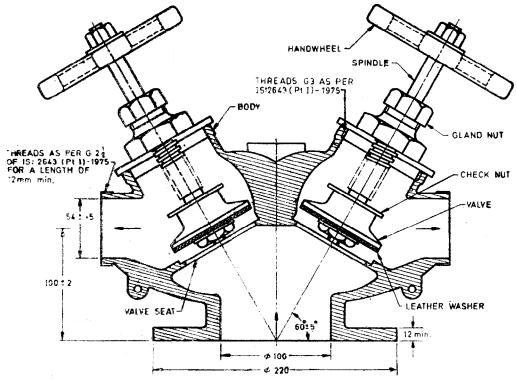


#### NOTES

- 1 Outlet is fixed with instantaneous female coupling with blank cap ( see Fig. 3 and 4 ).
- 2 Tolerance where not specified shall be  $\pm$  0.5 mm.
- 3 Pre-circle diameter of flange shall match with respective diameter of pipe that is, 75 mm and 100 mm respectively.

  All dimensions in millimetres.

Fig. 1 Landing Valve Single Outlet (Type A)



#### NOTES

- 1 Both outlets are fixed with instantaneous female coupling with blank caps ( see Fig. 3 and 4 ).
- 2 Dimensions of the component parts, that is, handwheel, spindle and other attachments are same as in Fig. 1.
- 3 Tolerance where not specified shall be  $\pm$  0.5 mm.

All dimensions in millimetres.

Fig. 2 Landing Valve Double Head Outlet ( Type B )

### 4 MATERIALS

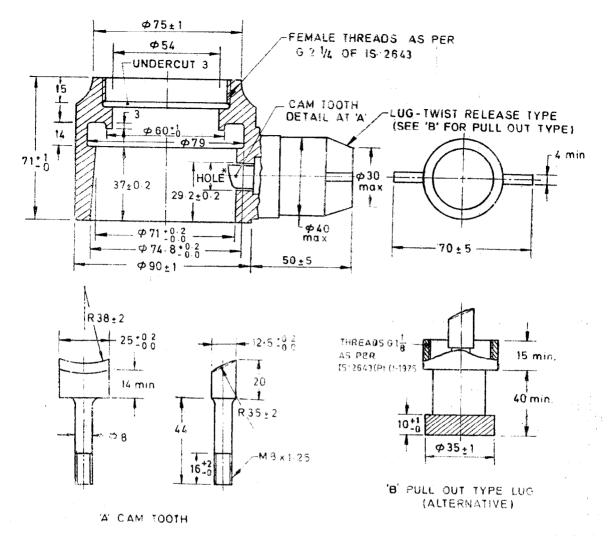
- 4.1 The valve body, bonnet, stop valve, check nut, instantaneous female outlet and blank cap shall be made either of leaded-tin-bronze conforming to Grade LTB-2 of IS 318: 1981 or aluminium alloy conforming to IS designation 4225, 4450 and 4600 of IS 617: 1975. All aluminium and zinc alloy shall be of die casting only.
- 4.1.1 Zinc-aluminium alloy (copper 0.5 to 1.5 percent, aluminium 10.5 to 11.5 percent, magnesium 0.015 to 0.03 percent and balance zinc) or stainless steel designation 04Cr17NiMO<sub>2</sub> conforming to IS 6529: 1972. All aluminium and zinc alloy shall be of die casting only.
- 4.2 The valve spindle shall be made of brass rod conforming to IS 320: 1980 or IS 319: 1989 for use with body of leaded-tin-bronze and of stainless steel conforming to IS 6603: 1972 for use with body of aluminium or zinc alloy or stainless steel.
- 4.3 The handwheel shall be made of mild steel conforming to IS 1030: 1989 or east iron conforming to IS 210: 1978.

- 4.4 Washers, gaskets shall be made of rubber conforming to IS 937: 1981 or leather conforming to IS 581: 1976. Gland packing shall be of asbestos thread conforming to IS 4687: 1980.
- 4.5 The spring shall be of phosphor wire conforming to IS 7608: 1987 for copper alloy landing valve and stainless steel wire conforming to IS 6528: 1972 for aluminium alloy, zinc alloy and stainless steel landing valves.

### 5 TYPES AND DIMENSIONS

- 5.1 The landing valves shall be of two types as under:
  - a) Type A Landing valve single outlet (see Fig. 1).
  - b) Type B Landing valve double head with double outlet (see Fig. 2).
- 5.2 The shape and dimensions of each type are given in Fig. 1 to 4.
- 5.2.1 Tooth shall be forged from forged brass material conforming to grade FLB of IS 6912: 1985.

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\*Rectangular Hole 12.8  $^{+0.2}_{-0.0} \times 25.4 \pm ^{+0.2}_{0.0}$ 

#### **NOTES**

- 1 The tolerance where not specified shall be  $\pm$  0.5 mm.
- 2 The lug may also be the part of the main body.

All dimensions in millimetres.

FIG. 3 INSTANTANEOUS FEMALE OUTLET

### 6 FINISH

- 6.1 All parts shall be of good finish, clear of burrs and sharp edges. All castings shall be of clean and sound and shall be free from plugging, welding or repair of any defects.
- 6.2 The valve top except the face of the flange and the instantaneous outlet shall be painted fire red of shade No. 536 of IS 5: 1978. The outside of instantaneous outlet shall be highly polished. The handwheel shall be painted black. Paints shall conform to IS 2932: 1974.

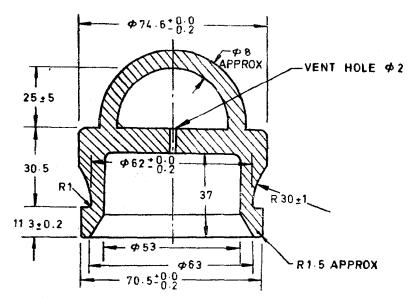
### 7 PERFORMANCE REQUIREMENTS

### 7.1 Water Tightness Test for the Valve

The stop valve shall be fully closed by screwing down the spindle. A hydrostatic pressure of 1.4 MN/m<sup>2</sup> (14 kgf/cm<sup>2</sup>) shall then be applied to each valve on its inlet side. There shall be no leakage through the valve and its seat.

### 7.2 Hydrostatic Pressure Test

Each assembled unit shall be subjected to a hydrostatic pressure of 2·1 MN/mm<sup>2</sup> (21 kgf/cm<sup>2</sup>) with the valve open and outlet closed for



NOTE — The tolerances where not specified shall be  $\pm$  0.5 mm.

All dimensions in millimetres.

FIG. 4 BLANK CAP

a period of  $2\frac{1}{2}$  minutes for the purpose of locating porosity in the casting. When so tested, it shall not fail or show any sign of leakage either through the valve body or through the gland of the spindle.

NOTE — During the hydrostatic pressure test, the initial drops of water should be allowed up to the period of proper rubber sealing with the male blank cap.

#### 7.3 Flow Test

Water shall be discharged through the valve assembly and its flow shall be measured using a flow meter or V-notch. The flow shall be not less than 900 litres per minute at 0.7 MN/m² (7 kgf/cm²) for Type A and 1 800 litres per minute at 0.7 MN/m² (7 kgf/cm²) for Type B provided the feed to the valves, for the purpose of this test, is not less than these figures. It shall be a type test.

#### 8 MARKING

**8.1** Each assembled valve shall be clearly and permanently marked on the valve body, as follows:

- a) Manufacturer's name or trade-mark,
- b) Code letter indicating the type of valve (inscribing type of instantaneous female outlet), and
- c) Year of manufacture.

#### 8.1.1 BIS Certification Marking

The valve astembly may also be marked with the Standard Mark. Details are available with the Bureau of Indian Standards.

### ANNEX A

(Clause 2)

### LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
5:1978	Colours for ready mixed paints and enamels (third revision)	1030 : 1989	Specification for carbon steel castings for general engineering purposes (fourth revision)
210:1978	Specification for grey iron castings (third revision)	2643 (Part 1): 1975	Dimensions for pipe threads for fastening purposes: Part 1
318:1981	Specification for leaded-tin- bronze ingots and castings		Basic profile and dimensions (first revision)
	(second revision)	2932:1974	Specification for enamel, synthetic, exterior (a) undercoat-
319: 1989	Specification for free cutting brass bars, rods and sections (fourth revision)		ing, (b) finishing (first revision)
320:1980	Specification for high tensile	4687:1980	Specification for gland packing asbestos (first revision)
	brass rods and sections (other than forgings stock) (second revision)	6528:1972	Specification for stainless steel wire
581:1976	Specification for vegetable tanned hydraulic leather	6529 : 1972	Specification for stainless steel blooms, billets and slabs for forging
617:1975	( second revision )  Specification for aluminium	6603:1972	Specification for stainless steel bars and flats
	and aluminium alloy ingots and castings for general engi- neering purposes (second revision)	6912: 1985	Specification for copper and copper alloy forgings stock and forgings (first revision)
937:1981	Specification for washers for water fittings for fire fighting purposes ( second revision )	7608:1987	Specification for phosphor bronze wire for general engineering purposes (first revision)

### ANNEX B

( Foreword )

### COMMITTEE COMPOSITION

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Bombay Fire & Safety Applicances Co, Calcutta

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Central Industrial Security Force, Ministry of Home Affairs

West Bengal Fire Services, Calcutta The Institution of Fire Engineers (India), New Delhi

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SHRI HEMANT KUMAR Joint Director ( Civil Engg ), BIS

(Continued on page 7)

### (Continued from page 6)

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#### Standard Mark

The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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### Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards Monthly Additions'. Comments on this Indian Standard may be sent to BIS giving the following reference:

Doc No. CED 22 (5274)

Branches: AHMADABAD.

Amend No.

### Amendments Issued Since Publication

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Text Affected

### AMENDMENT NO. 1 JUNE 1994 TO

IS 5290: 1993 LANDING VALVES — SPECIFICATION

(Third Revision)

( Page 2, clause 4.1.1, line 4 ) — Read '04Cr17Ni12MO2' for '04Cr17NiMO2'.

(Page 3, clause 7.2, line 2) — Read '2.1 MN/m<sup>2</sup>', for '2.1 MN/mm<sup>2</sup>'.

(CED 22)

Reprography Unit, BIS, New Delhi, India

### AMENDMENT NO. 2 AUGUST 1999 TO

### IS 5290: 1993 LANDING VALVES — SPECIFICATION

(Third Revision)

[ Page 2, clause 4.1.1 (see also Amendment No. 1)] — Substitute 'Grade 1 and 4 of IS 3444: 1987' for '04Cr17Ni12MO2 conforming to IS 6529: 1972'.

(Page 2, clause 4.4) — Substitute 'seat valve' for 'gaskets'.

(Page 2, clause 5.2.1) — Substitute the following for the existing clause:

**'5.2.1** Tooth, seat valve shall be forged from forged brass material conforming to grade FLB of IS 6912: 1985 or IS 291: 1989. Blank cap shall be of ABS plastics.'

(Page 5, Annex A) — Insert the following at appropriate places:

'IS 291: 1989 Naval brass rods and sections for machining purposes.'

'IS 3444 : 1987 Corrosion resistant alloy steel and nickel base castings for general applications.'

### AMENDMENT NO. 3 FEBRUARY 2001 TO

### IS 5290: 1993 LANDING VALVES — SPECIFICATION

( Page 2, clause 4.1 ):

- a) Delete 'valve body' from first line.
- b) Insert the following at the end of clause:
- "Valve body shall be conforming to IS 3444: 1987 'Corrosion resistant alloy steel and nickel base castings for general applications'."
- ( Page 2, clause 4.1.1 ) Substitute 'Grade 1 and 4 of IS 3444 : 1987' for '04Cr17Ni12MO<sub>2</sub> conforming to IS 6529 : 1972'.

(Page 2, clause 4.4) — Substitute 'seat valve' for 'gaskets'.

(Page 2, clause 5.2.1) — Substitute the following for the existing clause:

'Tooth, seat valve shall be forged from forged brass material conforming to Grade FLB of IS 6912: 1985 or IS 291: 1989, Blank cap shall be of ABS plastics.'

(Page 5, Annex A) — Insert the following at the appropriate place:

'IS 291: 1989 Naval brass rods and sections for machining purposes.

'IS 3444: 1987 Corrosion resistant alloy steel and nickel brass castings for general applications'

### AMENDMENT NO. 4 OCTOBER 2002 TO IS 5290: 1993 LANDING VALVES — SPECIFICATION

(Third Revision)

[ Page 2, clause 4.1, line 1 ( see also Amendment No. 3 )] — Insert the following in the beginning:

'The valve body'

(Page 2, clause 4.1, line 7) — Delete 'and zinc alloy'.

# AMENDMENT NO. 5 MAY 2005

IS 5290: 1993 LANDING VALVES — SPECIFICATION

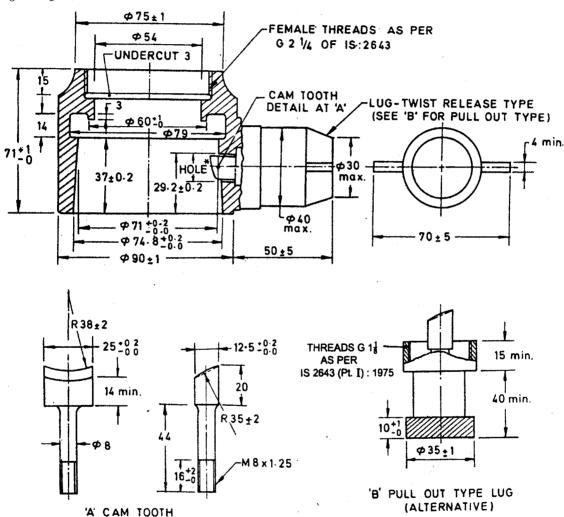
(Third Revision)

[ Page 2, clause 4.1 (see also Amendments No. 3 and 4) ] — Substitute the following for the existing:

'The valve body, bonnet, stop valve, check nut, instantaneous female outlet and blank cap shall be made either of leaded-tin-bronze conforming to Grade LTB 2 of IS 318 or aluminium alloy conforming to IS Designation 4225, 4450 and 4600 of IS 617 or stainless steel Grade 1 and 4 of IS 3444. All aluminium and zinc alloy shall be of die casting only.

( Page 2, clause 4.4) — Substitute 'seat washer' for 'gaskets'.

( Page 3, Fig. 3 ) — Substitute the following figure for the existing:



\*Rectangular Hole 12.8  $+ \frac{0.2}{-0.0} \times 25.4 + \frac{0.2}{-0.0}$ 

NOTES

- 1 The tolerance where not specified shall be  $\pm$  0.5 mm.
- 2 The lug may also be the part of the main body.

All dimensions in millimetres. FIG. 3 INSTANTANEOUS FEMALE OUTLET

### AMENDMENT NO. 6 MAY 2006 TO

### IS 5290: 1993 LANDING VALVES — SPECIFICATION

(Third Revision)

[ Page 2, clause 4.1 ( see also Amendments No. 3 and 4 ) ] — Add the following at the end of clause:

'Blank cap may be of ABS plastic'.